



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,323	10/25/2001	Peter Hagn	P01,0356	5549

26574 7590 02/08/2005

SCHIFF HARDIN, LLP
PATENT DEPARTMENT
6600 SEARS TOWER
CHICAGO, IL 60606-6473

EXAMINER

JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
----------	--------------

2643

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,323	HAGN, PETER	
	Examiner	Art Unit	
	Alexander Jamal	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claims 18,19** objected to because of the following informalities:

As per **claim 18**, “a detector at least” should be changed to “a detector of at least”.

As per **claim 19**, “selected a group” should be changed to “selected from a group”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 6-8,14**, rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per **claim 6**, the claim states “a reception band for said FDD mode in said pure FDD mode transmission system”. Claim 1 states a set of filters for a pure mode transmission system with a pure FDD **or** pure TDD mode. If claim 1 is read to implement the pure TDD mode then it is not clear to which mode (TDD or FDD/TDD) claim 6 refers to.

Art Unit: 2643

As per **claim 7**, claim refers to a duplexor for separating a reception band of said pure FDD mode system. Claim rejected for the same reasons as the 112 rejection of claim 6.

As per **claim 8**, claim refers to “said pure FDD mode transmission system **and** said pure TDD mode transmission system”. Claim 1 states a set of filters for a pure mode transmission system with a pure FDD **or** pure TDD mode. It is not clear as to which band pair claim 8 is referring to.

As per **claim 14**, claim refers to said RF filters **and** duplexers. Claim 1 states “switch element selected from the group consisting of RF switches, duplexers and diplexers”. If claim 1 is read to select the RF switches then it is not clear what ‘said duplexers’ of claim 14 is referring to. Examiner notes that the Hagstrom reference (as stated below) discloses both the use of duplexers and RF switches.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2643

5. Claims 1-3, 5-7,9-11,15-17 rejected under 35 U.S.C. 102(e) as being anticipated by Hagstrom et al. (6185434).

As per **claim 1**, Hagstrom discloses a front end for a multi-mode cell phone comprising RF switch elements 14,42,43 (Fig. 5, Col 5 lines 44-67). The system further comprises common antenna 21, mixed mode (GSM) filters 13a and 18a, pure mode (DECT system which may be implemented in TDD or FDD mode) filters 13b and 18b. The filters are coupled to the common antenna via the switches. Examiner also notes that Fig. 4 of Hagstrom also reads on claim 1.

As per **claims 20,21**, claims rejected for same reasons as claim 1 rejection. As it is a multi-mode telephone, it may function in a third generation system (Col 1 lines 1-34), or in the previous second generation system (by using just one of the modes).

As per **claim 2**, the system comprises diplexer 51 (Fig. 5) that coupled band pairs 54 and 55 to common antenna 21. The band pairs are separated by an octave (Col 1 lines 25-30).

As per **claim 3**, claim rejected for same reasons as claim 1 and 2 rejections. Hagstrom discloses an RF switch in Fig. 4 that is used to separate the GSM and DECT band pairs.

As per **claim 5**, the system (Fig. 5) further comprises filter 13a which is a bandpass filter. A bandpass filter inherently (by definition) comprises the functionality of a high-pass filter and a low-pass filter.

As per **claim 6**, the system may comprise a duplexer that comprises an RF-switchable bandpass filter (Col 7 lines 25-36).

As per **claim 7**, claim rejected for same reasons as claim 6.

As per **claim 9**, Hagstrom discloses that the system may be implemented with additional parallel system (band pairs) operating DECT, GSM or any other compatible known signaling format (Col 7 lines 9-25).

As per **claims 10,11**, any additional band pairs would inherently comprise RF switches, duplexers, and diplexors for each band pair in the same manner described in Fig. 5 for the purpose of allowing the additional band pair to function as the band pairs of Fig. 5.

As per **claim 15**, the system may be implemented in a substrate with with soldering pads (for discrete components), which is a printed circuit board (Col 6 lines 5-35).

As per **claims 16,17**, the system inherently comprises a DC drive for the purpose of providing power and bias to all the circuitry. The system further comprises a printed circuit board (common, multi-layer substrate) for the purpose of supporting and coupling (integrating) all the components of the circuit. The printed circuit board comprises partially planar structures (traces and vias and soldering pads) (Col 6 lines 6-35).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 22,23** rejected under 35 U.S.C. 103(a) as being unpatentable over Hagstrom (6185434).

As per **claim 22**, claim rejected for same reasons as claim 1 rejection. However, Hagstrom does not specify that one band pair is for a pure TDD system and a second band pair is for a pure FDD system.

Hagstrom additionally discloses that the system is not limited to specifically one GSM (mixed mode) and one DECT mode, but may be implemented with other known dual mode apparatuses (Col 7 lines 9-26). Hagstrom's system implemented with two known DECT systems (one pure FDD and one pure TDD) would comprise the associated pure mode filters for each band pair. It would have been obvious to one of ordinary skill in the art at the time of this application to implement any combination of known band-pair systems (GSM, FDD/TDD, DECT, pure FDD, or pure TDD) for the advantage of providing maximum compatibility with the system in which the phone is to be used.

As per **claim 23**, claim rejected for same reasons as claim 1 rejection.

8. **Claim 4** rejected under 35 U.S.C. 103(a) as being unpatentable over Hagstrom (6185434) as applied to claims 1 and 3 and further in view of Minarik (6018644).

As per **claim 4**, Hagstrom discloses applicant's claims 1 and 3 and discloses two RF switches 41 and 14a (Fig. 4) used to separate the band pairs (switch 41) and enable TDD switching (Switch 14a). However Hagstrom does not disclose the use of a multi-switch in place of switches 41 and 14a.

Minarik discloses an RF multi-switch 26 (Fig. 1) used in a radio system front-end. It would have been obvious to one skilled in the art at the time of this application that switches 14a and 41 in Hagstrom could be implemented as a multi-switch for the purpose of lowering part count (manufacturing cost).

9. **Claims 12-14** rejected under 35 U.S.C. 103(a) as being unpatentable over Hagstrom (6185434) as applied to claim 1 and further in view of Burgess (6459885).

As per **claims 12,13**, Hagstrom discloses applicant's claim 1 and the use of RF switches. However, Hagstrom does not specify what type(s) of switches are used.

Burgess discloses a radio transceiver switching circuit comprising RF switches made from GaAs FET transistors or PIN diodes with additional phase shifters (capacitors) (Col 1 lines 15-65). It would have been obvious to one skilled in the art at the time of this application that the switches could be made with GaAs FET transistors or

PIN diodes for the purpose that they are well known switch implementations that are effective in RF mobile phones.

As per **claim 14**, claim rejected for same reasons as claim 12,13 rejections.

Additionally, Hagstrom discloses that the triplex filter (which may comprise RF filters and duplexers) may be implemented as stripline filters (Col 6 lines 25-35).

10. **Claim 18** rejected under 35 U.S.C. 103(a) as being unpatentable over Hagstrom (6185434) as applied to claim 1 and further in view of Waldroup et al. (6070058).

As per **claim 18**, Hagstrom discloses applicant's claim 1 and power amplifiers on the transmission path (Fig. 5). However, Hagstrom does not specify that the system comprises a directional coupler to regulate the power amplifier.

Waldroup discloses a radio transceiver comprising a directional coupler 50 (Fig. 1). Used to regulate a power amplifier (ABSTRACT). He teaches that this allows for a more efficient use of battery power (Col 1 lines 29-50). It would have been obvious to one skilled in the art at the time of this application to implement the additional power amp regulation for the purpose of conserving battery power.

Art Unit: 2643

11. **Claim 19** rejected under 35 U.S.C. 103(a) as being unpatentable over Hagstrom (6185434) as applied to claim 1 and further in view of Kurchuk et al. (6272327).

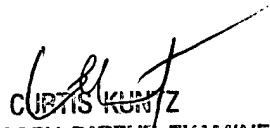
As per **claim 19**, Hagstrom discloses applicant's claim 1. However, Hagstrom does not specify that the system comprises a circulator arranged between the transmission amplifier and the antenna.

Kurchuk discloses a radio phone comprising circulator 350 (Fig. 6) (Col 9 lines 35-50). It would have been obvious to one skilled in the art at the time of this application to implement the circulator in Hagstrom's system for the purpose of protecting the transmitter from reflections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ
February 2, 2005


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2200